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CORROSION

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Questions by H. F. Keller, Jr., Allied Chemical Corp., Syracuse, N. Y.:

It is my understanding that you set a 0.050 inch per month figure as a maximum value for determining the acceptability of Hastelloy C. How was this value established? How is this value affected by the use of welded test specimens incorporating both weld and base metal?

Reply by M. A. Streicher:

In the article, the statement is made (last sentence) "The corrosion rate of material whose rate exceeds 0.05 in /mo. can be reduced by additional annealing treatments at 2235 ± 25 F." Data given in Table 2 show that the corrosion rate of those heats whose rate exceeds 0.05 in/mo (3.8 g/sq dm in 24 hours) in the ferric sulfate-sulfuric acid test can be reduced to a rate below this value by heating to 2235 ± 25 F. Further support for this observation was obtained in additional tests (not described in the article) on welded specimens and on specimens up to 3 inches thick. In each case, one or more annealing treatments reduced the rate to less than 0.05 in/mo. It is not the purpose of the article to specify for general use a maximum permissible corrosion rate for acceptance but to demonstrate how optimum corrosion resistance can be produced by heat treatments.

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ERRATA - CORROSION, Volumes 19 and 20

Implications of the Stress Aging Yield Phenomenon with Regard to Stress Corrosion Cracking. By P. R. Swann and H. W. Pickering, Corrosion, Vol. 19, 369t-372t (1963) November.

On page 370t, Figure 3 should appear as:

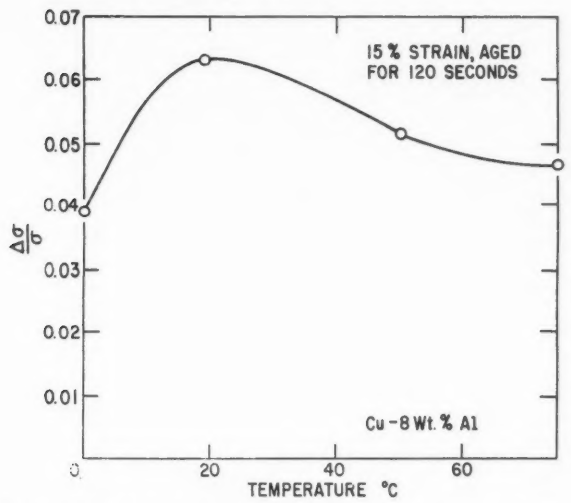

Figure 3—The effect of temperature on the ratio $\Delta\sigma/\sigma$ for a copper-8 wt percent Al alloy.[1]

On page 370t, caption for Figure 2 should read:

Figure 2—The effect of the nickel and nitrogen content of austenitic stainless steels and the stress aging temperature on the ratio $\Delta\sigma/\sigma$. The stress aging time was 30 minutes at 5 percent strain. Also shown is the time for stress corrosion failure as a function of temperature.[6]

Corrosion Resistance of Type 329 Stainless Steel in Nitric Acid Containing Chloride Ion, By Irvine I. Tingley, Corrosion, Vol. 19, 408t-413t (1963) December.

Beginning with line 7 on page 408t read:

totally immersed, or in the hot vapors without reflux, Type 329 was as resistant as Type 309SCb, and more so than Types 316, 304L and Ni-o-nel. In the

Theory of Stainless Steel Pitting. By W. Schwenk. Corrosion, Vol. 20, 129t-137t (1964) April.

The equations on page 134t should read as follows:

$$\frac{dE}{d\lg(j)} \gtrapprox -\frac{3}{2}\frac{dE}{d\lg t} \qquad (6)$$

For potentials to about 700 mV_H there follow from Figure 8:

$$\frac{dE}{d\lg j} = \frac{-400}{3}\ mV \text{ and } \frac{dE}{d\lg t} \gtrapprox 200\ mV$$

The result of this is the Tafel slope for the dependence of current density on potential in the pit bottom area:

$$b_+ = \frac{dE}{d\ln j} = 0.434\frac{dE}{d\lg j} \gtrapprox 87\ mV \qquad (7)$$

Statistical Distribution of Stress Corrosion Endurance, By F. F. Booth, G. E. G. Tucker and H. P. Godard, Corrosion, Vol. 19, 390t-395t (1963) November.

The first paragraph on page 393t should read:

The comparison was made in two ways: (1) graphically, as in Figure 3, where a histogram of the observed "t" values is compared with the theoretical frequency distribution, and (2) by an χ^2 test of goodness-of-fit between the actual and theoretical numbers of results falling within various ranges of "t". The agreement between observation and theory is seen in Figure 3 to be excellent and this was confirmed by the χ^2 test where a probability of 0.39 was obtained.

On page 394t, last two lines of first complete paragraph should read:

ful one, as it corresponds roughly with the smallest member of a sample of five.

On page 394t, the first two lines of the second complete paragraph in the right column should read:

The units for the last two columns in Table 2 are the geometric mean of the endurance

On page 395t, line 9 of the paragraph headed "**Example**" should read:

are $10^{\mu-1.352\sigma}$ etc. Now $10^{\mu-1.352\sigma} = 10^{\mu} \times 10^{-1.352\sigma}$

Line 12, same paragraph, should read:

0.3693 and writing $G = 10^{\mu}$ then the failure time of the

EFFECT OF PLASTIC DEFORMATION ON THE CORROSION OF IRON AND STEEL, by N. D. Greene and G. A. Saltzman. Corrosion, Vol. 20, 293t-298t (1964) September.

On Page 294t, Col. 2, Para. 1, change to read: The results of these corrosion tests were as follows.

CORROSION ASPECTS OF IRON, AUSTENITIC STAINLESS STEEL AND INCONEL IN HIGH TEMPERATURE WATER, by C. F. Cheng. Corrosion, Vol. 20, 341t-349t (1964) November.

Running headlines at the tops of pages 343t, 345t, 347t and 349t should read:

CORROSION ASPECTS OF IRON, AUSTENITIC STAINLESS STEEL AND INCONEL IN HIGH TEMPERATURE WATER